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DEVELOPMENT OF A STORAGE-RETRIEVAL SYSTEM FOR SOCIAL SCIENCE GENERALIZATIONS.

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GENERALIZATIONS WERE CLASSIFIED AND FIELD TESTED, AND A RETRIEVAL SYSTEM DEVELOPED DURING THIS PROJECT. THE SYSTEM DEVELOPMENT INVOLVED ORGANIZING GENERALIZATIONS INTO A LOGICAL SYSTEM OF 10 CATEGORIES. THE CODING PLAN WAS TO ASSIGN A 10-DIGIT NUMERIC CODE TO EACH GENERALIZATION AND CATEGORY. TWO DECKS OF CARDS WERE CODED AND PRODUCED, AND A LIBRARY CONTAINING MOST OF THE SOURCE MATERIALS ESTABLISHED. THE EVALUATION INCLUDED A REVIEW BY A PILOT GROUP OF TEACHERS. EVALUATIONS CONSISTED OF IDENTIFICATION AND A SEARCH OF SOURCE DATA. OBSERVATIONS WERE MADE OF THEIR RESPONSES AND ACTIVITIES. TEACHERS HAD DIFFICULTY USING THE SYSTEM UNTIL THEY BEGAN TO THINK IN TERMS OF GENERALIZATIONS RATHER THAN SPECIFIC FACTS. FUTURE RESEARCH WAS SUGGESTED TO EXPAND THE FILE TO INCLUDE RECENTLY DEVELOPED GENERALIZATIONS AND SOURCES. (RS)

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# Development of a Storage-Retrieval System for Social Science Generalizations

Cooperative Research Small Contract Project No. S-112

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I

# PROJECT BACKGROUND

Teachers of the social studies tend to be oriented toward the "facts" in their subject-matter areas rather than toward the substantial ideas of the related disciplines. Yet the most powerful pedagogical models and instruction principles are based upon the identification of valid, teachable generalizations. This apparent difference between reality and theory is a long time concern to social science educators-it leads to an immediate reduction in the potential effectiveness of social science instruction.

Related work:

This project grew out of interpretations of the work done by the doctoral students of Paul R. Hanna and Richard E. Gross. These scholars identified and collected valid social science generalizations relating to (1) Organizing and Governing, (2) Providing Recreation, (3) Protecting and Conserving Human and Natural Resources, (4) Expressing Religious Impulses, (5) Expressing and Satisfying Aesthetic Impulses, (6) Transporting People and Goods, (7) Producing, Exchanging, Distributing and Consuming Food, Clothing, Shelter, and Other Consumer Goods and Services, (8) Communicating Ideas and Feelings, (9) Providing Education, (10) Creating Tools, Techniques, and Social Arrangements.

Two comments on these studies are especially pertinent to this project.

> John M. Higgins wrote: It can be seen from the description of the studies above [the ten dissertations] that here lie great stores of information available to the curriculum planner and text writer. However, an examination of the

> findings of the research will also show that to use this information in the best manner will involve the time and talents of those who are interested in the production of materials and books based on the information available. Filmstrips, readers, teachers' curriculum outlines and resource units must be produced in order to make full use of this new knowledge.[1]

And the following statement from Hanna and Lee:

> Two other advantages seem obvious in the use of the generalizations found in these studies. First, the teacher or curriculum planner has immediately available a number of generalizations representing syntheses of tremendous amounts of factual information. The teacher or supervisor therefore can economize with his limited time for curriculum planning by making initial selections from these investigations. This economy then permits him to devote a greater proportion of his planning time to perceiving topics of more recent nature of those not covered in these studies.
>
> Second, the educator can quickly trace the sources of a reported generalization to assure himself that its statement is accurate, and to grasp the context from which the generalization was taken. Even though most educators will be aware of the validity of the generalizations reported, they will also likely feel the need to review the factual information upon which the generalization is based before making use of it. These investigations serve in this sense as guides to recent and scholarly sources for relearning and review.[2]

The Problem:

While many problems are implied by the difference between fact-oriented teachers and generalization-preferring instructional principles, this study sought a possible avenue of reconciliation. The already-developed generalizations if made effectively and easily available to teachers might help make it possible for them to be more directly concerned with the

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[1]Higgins, John M. "Social Studies for Today's Needs," The Social Studies, LV (February, 1964), p. 56.

[2]Hanna, Paul R. and Lee, John R. "Content in the Social Studies," Chapter III in National Council for the Social Studies, Social Studies in Elementary Schools, N.C.S.S. 32nd Yearbook, 1962, p. 88.

valid generalizations of the social sciences in the process of teaching.

Project objectives:

Three specific objectives follow from this problem statement.

(1) To develop a system for classifying and coordinating the ten categories of generalizations to make it easier for a teacher to seek the generalizations pertinent to a given topic or unit of instruction.

(2) To develop a retrieval system to make the teachers' seeking of specific generalizations a relatively efficient task.

(3) To field test under different conditions the efficiency of the retrieval system.

These objectives follow logically from the general problem and more directly from the practical problems caused by the form in which the generalizations are presented in the ten Stanford dissertations. First, the dissertations are available to teachers only in microfilmed book form. The generalizations are presented as lists of statements on serial pages in these materials. This makes the seeking of a generalization within a category a difficult task and the cross-category seeking of several generalizations even more onerous. Second, within a single category the generalizations are arranged according to a coded logic pattern, but the same code system is not used for all categories. This adds significantly to the difficulty of any attempt to use several or all categories simultaneously.

The investigators felt that overcoming these practical usage problems might help make it possible for teachers to move toward a generalization centered approach to the teaching of social studies.

## II

## PROCEDURES AND FINDINGS

System development:

The initial part of this project, then, was the organizing of the generalizations into a logical system. The original ten categories were already fairly well organized into taxonomic arrangements of the generalizations, but not all categories used exactly the same system of stratification into subcategory structures. A single system was developed and applied to all ten categories of generalizations. This sytem was, essentially, a ten digit numeric code system assigned to each generalization and category of generalizations. The first two digits indicated the major category; the third and fourth digits spelled out the subcategory; and so on taxonomically until the ninth and tenth digits specified each single generalization. Such a structure can be read with reasonable ease by teachers and it also allows for easy card coding by key punch machine.

This coding phase of the project resulted in two decks of computer cards. The first, the machine deck, had the actual alphabetic statement of the generalization, or category, machine printed at the top. The card was also code punched by category classification and for alphabetic copying. The second deck, the manual deck, was simply a print-out of the category or generalization statement.

It was hoped, initially, that there would not have to be two separate decks but that one combination machine/manual deck would suffice. A pilot test showed that this was not feasible because the generalization statements were so long that they required several cards for the print-out information. This added enough to the user's task that the manual deck, which contained a complete textual statement of a generalization on one card, would be necessary. The manual deck contained, thus, about one-fourth the number of cards required for the machine deck.

While the coding, punching, and print-outs were being prepared, a library of original sources was being gathered. These were the writings from which the generalizations had originally been drawn. Many of these sources were out-of-print and other procurement problems prevented obtaining all references prior to testing the system with teachers, but a sufficient number of references were eventually available to evaluate the system. These library materials were coded and were shelved according to this code. The source code was also, then, added to the card for all generalizations which had been drawn from or which were amplified by material in the book, pamphlet, etc.

In summary then, this phase of the project gave a deck of cards, (the machine deck) each of which contained a category code, alphabetic print-out instructions, and a print-out statement of the generalization or category title and reference information. It also gave an abbreviated deck (the manual deck); each card contained only a print-out statement of the generalization or category title and reference information. This phase also resulted in the establishment of a library containing most of the original source materials from which Hanna, Gross, et al, had drawn the generalizations.

A complete listing of categories and their code classifications are added to this report as Appendix A.

System evaluations:

Sample selection - The original category system devised by the dissertation authors was devised to facilitate curriculum development and change in elementary social studies. This system was viewed by a pilot group of teachers to be most applicable in conceiving elementary social studies. Hence only primary and intermediate teachers were included in the sample.

Two basic groups were included in the sample: (1) in-service teachers working with elementary social studies curricula development and (2) teachers drawn from six grade levels in two different elementary schools.

The first group had been oriented toward the development and use of generalizations in the social sciences. The teachers had been introduced to a wide variety of curricular programs and approaches to teaching. The group was composed of twelve experienced teachers representing grade levels one through six. It represented urban and rural schools.

This group was, in a sense, oriented theoretically. A curriculum theory was developed (Appendix B) and a model elementary social studies program was generated by the investigators (Appendix C). All of the teachers were "taught" the theory and later asked to develop their own model curricula in the manner of the investigator's example. They did so and produced materials the "best" of which were selected as evidence of being able to deal with abstract constructs.

The investigators invited these teachers, those deemed most capable of abstract planning, to participate in the first test of the retrieval file.

The second group came from schools located in the University community. The teachers all had experience in helping student teachers. They were accustomed to a traditional curriculum and had not been oriented towards either the process of inducing generalizations or curricular programs based on generalizations. An invitation was extended to these teachers and they voluntarily accepted the opportunity to participate in the second test of the retrieval system. One librarian was included at her own request.

## EVALUATION I

It was expected that the teachers would

a) identify generalizations pertaining to their topic areas

b) have difficulty relating generalizations at the highest levels of abstraction with topics they taught

c) develop new, related trends in thinking while using the file and outlines

d) be able to use the outlines, file box, and library without difficulty

e) have difficulty in reading library reference material that was at highest levels of abstraction

f) accept the system as being useful in the teaching

The teachers selected on the basis of their ability to develop a model curriculum from a theoretical construct were grouped in an elementary school classroom. Essential elements of information pertaining to the retrieval file

were explained and printed instructions were distributed (Appendix D). The use of the file was demonstrated and questions were answered.

In identifying generalizations that pertained to particular topic areas, the group performed satisfactorily. There was some confusion between facts and ideas and between information and generalizations. There seemed to be a desire to search for factual information rather than for profound ideas. Instead of searching for many generalizations for a particular topic, some members of the group seemed to be looking for one generalization to represent their topic. The problem was one of looking for preconceived generalizations rather than looking at a range of generalizations. Other members found that the use of the file expanded their thoughts and gave them new topic areas.

The use of the outlines presented no problems to the subjects, except in relating their topics to the categories on the outlines. This problem was the result of the teacher's inability to differentiate between facts and ideas. The use of the library was systematic for all the generalizations found. Some browsing did take place.

Many stated that the library did not help them learn more about the generalizations. They had been searching for facts, rather than ideas in using the library material.

At no time was there a total rejection of the whole system. Many wanted to be able to use the file and library as a source of facts rather than ideas.

## EVALUATION II

The teachers were grouped in a University laboratory. Space was limited. The library and the hand-retrieval file were conveniently located and parts of the file could be used without disturbing individuals working with other parts.

The teachers were instructed in the same manner as the first group. To define a topic they were asked to identify any interesting one in their social studies program.

As in the first test, the general atmosphere was one of intense industry and concentration. Teachers attempted to find generalizations pertaining to familiar topics, e.g. Indians, community helpers, conservation and the history of Delaware. In these efforts they were frustrated at various times, they asked the investigators for help and were directed toward a redefinition of topics e.g. kinship systems, economic effort among primitive and advanced social groups, and the wisest use of resources. Those who could not make a transition from specific people, places or things remained unsatisfied in identifying generalizations.

Most of the teachers found it necessary to go to the original reference sources to glean real meaning from the generalizations as stated in the file. In some cases difficulties arose due to missing books or the failure of the file card to cite correctly the page from which the generalization was derived.

Despite many distractions a strong interest and steady concentration developed over a period of two hours. Teachers composed notes and identified generalizations, matched generalizations in a search for causitive explanations of larger topics and frequently conferred with one another upon making a discovery in a library reference.

Much of the initial effort was random in nature but it tended to produce additional efforts as one idea of interest led to another. Toward the final moments of the test teachers were getting tired yet stated that they had to go "just one more" and were sure they would find it.

General Observations:

1. The teachers found the categories to be of more or less use depending on the topic.
2. Teachers seldom felt that they understood the generalizations unless they read them in the context of the original source.
3. Teachers became task oriented and socialized towards intellectual goals that they defined for themselves when using the file and library.
4. Teachers wanted to spend more time with both the file and library than was allocated in the tests.

General Conclusions:

1. The interest level among the sample users was very high. This was, of course, partly attributable to the unique character of the task posed for the teachers, but the interest was also sustained. Indeed, each successful attempt with using the system reinforced this high

interest level and caused the second attempt to be undertaken with even more enthusiasm than had been present at first.

2. The sample teachers had difficulty using the system until they began to think in terms of generalizations rather than facts. Almost without exception the teachers had initial difficulty using the system because they were looking for facts. But they found it rather easy, again almost without exception, to change their mode as they began to see how the system forced them to approach their content areas in a nontraditional fashion.
3. The ease with which the system was used depended on the explicitness of the problem-area definition and not on the size or the scope of the area. Teachers who entered the system initially with a stereotyped area, such as "Indians" had difficulty while those whose first attack was with a more "hypothesis-like" problem statement found the system easy. The system forced analytical thinking which caused all teachers to refine their own thinking about their topics.
4. A cyclic process of finding a generalization, checking references and returning to seek additional generalizations was characteristically formed. The reference materials seemed to provide the system with a heuristic quality.
5. Historical and geographical topics tended to be perceived in more fact-bound ways than did topics from other social science areas. Consequently these areas appeared more difficult than others.

Probably, however, the more fact-bound teachers simply selected historical and geographical topics to investigate.

6. There was some disappointment shown because the system only provided topics and did not provide methods of instruction. This is perhaps a valid direction for future exploration.

Implications:

1. The notion that elementary teachers are not attracted to intellectual tasks is not supported by observations of their behavior while using the retrieval system. Over and above an anticipated interest-arousal they were caught up in the spirit of concentrated thought without any extrinsic reward in sight. This phenomenal characteristic would be of great use to any group leader wishing to launch a study of an elementary social studies program with the intention of changing it.
2. Most of the subjects approached the retrieval file with an intention, to deduce generalizations from a topic, a factual topic, not defined in terms of social processes. Using the file seems to generate a reward system that provides a positive feedback to those who change their mode of thought to include a general orientation towards social processes and a specific willingness to think inductively as well as deductively.
3. Curriculum leaders are probably going to have to provide opportunities for teachers to have specialized experience prior to introducing the retrieval file. Consideration of an "easy" entry into curriculum

analysis must parallel a concern for unity in substantive information and some structure within a preconceived unit. Structure may need to include both a medium for ordering facts and for assessing relationships among facts.

Subject teachers appeared to have little difficulty if they discovered generalizations that helped clarify a somewhat fuzzy understanding of social processes. Even if they wished to apply their results to defining knowledge pertaining to Indians, they had to speculate about primitive societies, simple economic structures, basic political processes, etc. before the file was helpful. Furthermore, some feeling for applying analogs appeared vital.

There is a dangerous propensity for stereotyped thinking among individuals who are prone to cursorily analyze and develop a set idea. Some experience in viewing legitimate communities and differences between people and the situation being is important. Put in another way, teachers must not determine dependent and independent variables before using the file. This last consideration seemed to plague many who were clearly oriented towards chronological or areal determinisms rather than time-space relationships.

Teachers with an idea in mind(e.g., Would a comparison of Japanese ceremonies to social behavior reveal ways of living in Japan that facilitate understanding by students not experienced in Japanese customs?) found the process of using the file and library, as described in part 4 of the conclusions, easier. Interpreted in another way, those possessing a "Sociological Imagination" moved to a heuristic approach most readily.

4. Instruction to aid those using the file must be improved as curriculum groups probably cannot afford the time necessary for tutorial and small groups experimentation that was possible in this experimental effort.

# IV

## FUTURE RESEARCH

We have elected to suggest possible avenues for further research. It weems best to do this in two dimensions: substantive and procedural. Of course a given suggestion cannot be totally within either dimension, yet the two loose categories served to order our thinking.

Substantive suggestions:

1. The file can be expanded to include generalizations and sources recently developed by several scholars interested in the inventory of current knowledge. Selected items from Human Behavior, Bernard Berelson and Gary A. Steiner and Voting, Bernard Berelson would strengthen the collection pertaining to political processes in the main and other categories in general.

The repeated call for an inventory of knowledge in international relations has produced a body of work by Thomas C. O'Sullivan (Raytheon Corp., Bedford Mass.), Charles Osgood (University of Illinois Communications Center), Sheldon Feldman (Annenberg School of Communications, University of Pa.), Dennis Sullivan (Political Science Department, University of Illinois), Richard Snyder (Political Science Department, Northwestern University) and others.

Other substantive fields should be explored as well.

2. This investigation has revealed that teachers have difficulties in relating generalizations to facts. It may be true that a"linkage"

exists in the structure of knowledge in the social science disciplines. This structure, viewed macroscopically, is one that takes its form from the modes of inquiry developed in the disciplines. The most familiar and striking, hence teachable, manifestation of this structure could be the theories which have risen from the disciplines. Other efforts of the investigators reveal some positive benefits in projecting teachers into the appraisal of given theories with the intent of converting them into pedagogical models for teaching history and the other social studies. Marc Belth's new volume, Education As A Discipline: A Study Of The Role Of Models In Thinking offers some excellent reflections of the value of modular thinking by teachers and curriculum planners. The retrieval file could be designed to include major theories and constructs which have wide and powerful applicability in developing teaching strategies which include generalizations as conceptual objectives.

3. The references cited in the doctoral dissertations constitute a valuable source library for mature students in the social sciences. Yet they are not keyed to the conventional literature written for children and adolescents. The rapid growth of this literature, coupled with (1) strong indications that most teachers learn a new subject from the literature they use in teaching and (2) repeated requests by teachers involved in this investigation to help them identify materials to help them teach what they have learned, produces the need for additional references in the retrieval file reference system. The additional references could follow the same basic category and file system as the generalizations, references, and models suggested above.

Procedural suggestions:

The purpose of this study was simply to develop a retrieval system and to test it sufficiently to determine whether teachers could use it. This leaves open all of the many questions relating to the impact of the generalizations on grade-level content, instructional modes and curricular patterns. This small study also did not attempt to answer many of the procedural questions related to the system and its uses.

1. Further testing of the machine retrieval deck of cards should be conducted. For this study it was assumed that a machine would simply duplicate the hand sorting. Thus if the manual retrieval system was easily used, the machine system was, similarly, easy. But it may well be that the machine could perform operations that would be too time-consuming to be performed manually. More testing of the machine system appears indicated.

2. The numbers and kinds of teachers used in the testing procedures conducted for this study and the purposes for which the system was used do not provide a high validity from a research design viewpoint. Further checking with more teachers under different conditions working for different objectives seems required.

3. Additional code patterns should be explored. It might be possible to predict the types of topics for which teachers would seek generalizations and key these to an immediate generalization-recall pattern. That is, some of the"fact-binding" of teachers might be built into the system so that the system would "automatically" translate from fact to generalization.

There are other procedural questions left unanswered, but the essence of these suggestions is that the system now exists and it now requires use and refinement.

## APPENDIX A

## CATEGORY CODES

### #1 PRODUCING, EXCHANGING, DISTRIBUTING, AND CONSUMING FOOD, CLOTHING, SHELTER AND OTHER CONSUMER GOODS AND SERVICES

| Category Number | Category |
|---|---|
| 01000000 | Producing, Exchanging, Distributing, and Consuming Food, Clothing, Shelter and Other Consumer Goods and Services |
| 01010000 | Producing |
| 01010100 | What is produced |
| 01010200 | Controlling Elements |
| 01010201 | Increase |
| 01010202 | Decrease |
| 01010203 | Specialization |
| 01010204 | Factors of Production |
| 01010400 | Extractive Production |
| 01010500 | Manufacturing |
| 01010600 | Relationship with non-economic factors |
| 01020000 | Exchanging |
| 01020100 | Extent of Trade |
| 01020101 | Controlling Factors |
| 01020102 | Limiting Factors |
| 01020103 | Stimulating Factors |
| 01020200 | Manner of Exchange |
| 01020201 | Barter |
| 01020202 | Medium of Exchange |
| 01020300 | Price |
| 01020400 | Geographic Relationship |
| 01020500 | International Trade |
| 01020600 | The Market |
| 01030000 | Distributing |
| 01030100 | Wages |
| 01030200 | Rent |
| 01030300 | Interest |
| 01030400 | Profits |
| 01030500 | Equality-Inequality |
| 01030600 | Redistribution |
| 01040000 | Consuming |
| 01040100 | Demand |
| 01040200 | Income |
| 01040300 | Investment |
| 01040400 | Expenditure |
| 01050000 | General |

| | |
|---|---|
| 01050100 | Relationships With Basic Human Activities |
| 01050200 | Interrelationships among producing, exchanging, distributing and consuming |
| 01050201 | Producing and Consuming |
| 01050202 | Producing and Exchanging |
| 01050203 | Producing and Distributing |
| 01050204 | Consuming and Exchanging |
| 01050300 | Institutional Factors |
| 01050301 | Social |
| 01050302 | Political |
| 01050303 | Family |
| 01050400 | Technology |

## #2 CREATING TOOLS, TECHNICS, AND SOCIAL ARRANGEMENTS

| | |
|---|---|
| 02000000 | Creating Tools, Technics, and Social Arrangements |
| 02010000 | Creating |
| 02010100 | General |
| 02010200 | Man |
| 02010300 | Need |
| 02010400 | Opportunity |
| 02010500 | Cultural Base |
| 02020000 | Tools |
| 02020100 | General |
| 02020200 | Economic |
| 02020300 | Social |
| 02020301 | Symbols |
| 02020302 | Knowledge |
| 02020303 | Myth |
| 02020400 | Esthetic |
| 02030000 | Technics |
| 02030100 | General |
| 02030200 | Economic |
| 02030300 | Social |
| 02030301 | Communicating |
| 02030302 | Controls |
| 02030303 | Religions |
| 02030400 | Esthetics |
| 02040000 | Social Arrangements |
| 02040100 | General |
| 02040200 | Groupings |
| 02040300 | Institutions |
| 02040301 | Economic |
| 02040302 | Education |
| 02040303 | Government |
| 02040304 | Religion |
| 02040305 | Social Controls |
| 02040400 | Social Change |

## #3 TRANSPORTING PEOPLE AND GOODS

| Category Number | Category |
|---|---|
| 03000000 | Transporting People and Goods |
| 03010000 | Transportation in General |
| 03020000 | Historical Development of Transportation |
| 03030000 | Economic Aspects of Transportation |
| 03030100 | Transportation Routes |
| 03030101 | General |
| 03030102 | Roads and Highways |
| 03030103 | Water Routes |
| 03030200 | Transportation Costs |
| 03030300 | Availability of Resources |
| 03030400 | Specialization of Production |
| 03030500 | Transportation and Industry |
| 03030600 | Transportation Demand |
| 03030700 | Transportation and Trade |
| 03030800 | Human Transportation |
| 03030900 | Animal Transportation |
| 03031000 | Water Transportation |
| 03031001 | General |
| 03031002 | Ocean Transportation |
| 03031003 | Inland Water Transportation |
| 03031100 | Air Transportation |
| 03031101 | General |
| 03031102 | Advantages |
| 03031103 | Airports and Airways |
| 03031104 | Safety |
| 03031200 | Highway Transportation |
| 03031201 | General |
| 03031202 | Advantages |
| 03031203 | Terminals |
| 03031300 | Railroad Transportation |
| 03031301 | General |
| 03031302 | Passenger Service |
| 03031400 | Pipe Line Transportation |
| 03031500 | Urban Transportation |
| 03040000 | Socio-Cultural Aspects of Transportation |
| 03040100 | Urban Development |
| 03040200 | Cultural Diffusion |
| 03040300 | Distribution of Population |
| 03050000 | Political Aspects of Transportation |
| 03050100 | National Defense |
| 03050200 | Political Units |
| 03060000 | Geographic Aspects of Transportation |
| 03060100 | Climate |
| 03060200 | Surface Topography |
| 03060300 | Location of Settlements |

## #4 COMMUNICATING FACTS, IDEAS AND FEELINGS

| Category Number | Category |
|---|---|
| 04000000 | Communicating Facts, Ideas and Feelings |
| 04010000 | Purpose of Communications |
| 04010100 | Effect of Purpose on Communications |
| 04010200 | Development and Preservation of a Culture |
| 04010300 | Sharing and Acquiring Meanings |
| 04010400 | Achieving Unity in Sub-Groups |
| 04010500 | Acquiring and Using Power |
| 04010600 | Emotional Expression |
| 04010700 | Transmitting Values |
| 04020000 | Structure in Communication Media |
| 04020100 | Modern Mass Communications |
| 04020200 | Written Language |
| 04020300 | Print |
| 04020400 | Spoken Language |
| 04020500 | Linguistic Structure |
| 04020600 | Humor |
| 04020700 | Rumor |
| 04020800 | Propaganda |
| 04030000 | The Process of Communications |
| 04030100 | The Changing Process |
| 04030101 | Linguistic Change |
| 04030102 | Semantic Change |
| 04030200 | Barriers in the Process of Communications |
| 04030201 | Associational |
| 04030202 | Psychological |
| 04030203 | Semantic and Linguistic |
| 04030204 | Noise in Transmission |
| 04030300 | Facilitators in the Process of Communications |
| 04030400 | Coding and de-coding in the Process of Communications |
| 04030500 | The Use of Signs in Communications |
| 04030600 | The Use of Words in Communications |
| 04030700 | Using Signals in Communications |
| 04030800 | Using Symbols in Communications |
| 04030900 | Levels of Abstraction in Communications |
| 04031000 | Using a Frame of Reference in Communications |
| 04031100 | Redundancy in Communications |
| 04031200 | Using Inference in Communications |
| 04031300 | Using Controls in Communications |
| 04040000 | The Communicator |
| 04040100 | Characteristics |
| 04040200 | Acquiring a Language |
| 04050000 | Evaluating the Effectiveness of Communications |
| 04050100 | General |
| 04050200 | Mass Media |
| 04050300 | Propaganda |

## #5 PROTECTING AND CONSERVING HUMAN AND NATURAL RESOURCES

| Category Number | Category |
|---|---|
| 05000000 | Protecting and Conserving Human and Natural Resources |
| 05010000 | Physical Elements |
| 05010100 | Atmosphere, Climate, and Geographic Position |
| 05010200 | Oceans and Tidelands |
| 05010300 | Water |
| 05010400 | Water Pollution |
| 05010500 | Floods and Erosion |
| 05010600 | Land and Space |
| 05010700 | Soil |
| 05010800 | Mineral |
| 05010900 | Fuels |
| 05011000 | Fire |
| 05020000 | Biotic Elements (Excluding Man) |
| 05020100 | Crops |
| 05020200 | Grassland and Range |
| 05020300 | Forests and Forest Products |
| 05020400 | Wildflowers |
| 05020500 | Fish and Sea Life |
| 05020600 | Wildlife |
| 05030000 | Material Culture and its Sanctions |
| 05030100 | Agriculture |
| 05030200 | Production |
| 05030300 | Economics |
| 05030400 | Power and Energy |
| 05030500 | Property |
| 05030600 | Taxes |
| 05030700 | Laws and Regulations |
| 05030800 | Research |
| 05030900 | Technology |
| 05031000 | Change |
| 05040000 | Social Institutions and Processes |
| 05040100 | Family |
| 05040200 | Groups |
| 05040300 | Culture |
| 05040400 | Institutions and Formal Organizations |
| 05040500 | Nation |
| 05040600 | Government |
| 05040700 | Education |
| 05040800 | International Relations |
| 05040900 | Crime |
| 05041000 | War and Crisis |
| 05050000 | Man |
| 05050100 | Human Beings |
| 05050200 | Population |
| 05050300 | Health |
| 05050400 | Manpower |
| 05050500 | Morality |
| 05050600 | Religious and Spiritual |
| 05050700 | Recreation and Esthetics |
| 05060000 | Interrelated Statements |

## #6 ORGANIZING AND GOVERNING

| Category Number | Category |
|---|---|
| 06000000 | Organizing and Governing |
| 06010000 | Organization |
| 06010100 | Social Organization |
| 06010101 | Function and Purpose |
| 06010102 | Determinants |
| 06010103 | Product |
| 06010104 | Control |
| 06010200 | Social Institution |
| 06010201 | Function and Purpose |
| 06010202 | Determinants |
| 06010203 | Product |
| 06010300 | Social Association |
| 06010301 | Function and Purpose |
| 06010302 | Determinants |
| 06010303 | Product |
| 06010400 | Group Association |
| 06010401 | Primary |
| 06014101 | Family |
| 06010402 | Secondary |
| 06010500 | Quality of Relationship |
| 06010501 | Competition |
| 06010502 | Cooperation |
| 06010503 | Cooperation, Competition and Conflict |
| 06010504 | Conflict |
| 06010600 | Social Role |
| 06020000 | Governing |
| 06020100 | Purpose and Function |
| 06020200 | Determinants |
| 06020300 | Product |
| 06020400 | Control |
| 06020500 | Ideology |
| 06020600 | Reorganization |

## #7 PROVIDING EDUCATION

| Category Number | Category |
|---|---|
| 07000000 | Providing Education |
| 07010000 | Attitudes and Values |
| 07020000 | Curriculum |
| 07030000 | Educational Systems |
| 07040000 | Group Influences |
| 07040100 | Family |
| 07040200 | Other Groups |
| 07050000 | Interaction |
| 07060000 | Purposes and Goals |
| 07070000 | Socio-Cultural Influences |
| 07080000 | Symbolization-Communications |
| 07090000 | Teaching-Learning Process |
| 07100000 | Transfer |

## #8 PROVIDING RECREATION

| Category Number | Category |
|---|---|
| 08000000 | Providing Recreation |
| 08010000 | Characteristics of Recreation |
| 08010100 | General Characteristics |
| 08010200 | Importance |
| 08020000 | Historical Aspects of Recreation |
| 08030000 | Social Aspects of Recreation |
| 08030100 | Influences of the Culture on Reareation |
| 08030200 | Community Type and Recreation |
| 08030300 | Social Change and Leisure |
| 08030400 | Socialization through Recreation |
| 08030500 | Interpersonal Association and Groups |
| 08030600 | The Church and Recreation |
| 08030700 | The Family and Recreation |
| 08030800 | Industrial-Occupational Provision of Recreation |
| 08030900 | Organized Community Recreation |
| 08031000 | Commercial Recreation |
| 08031100 | Recreation in Primitive Societies |
| 08040000 | Politico-Economic Aspects of Recreation |
| 08050000 | Bio-Psychological Aspects of Recreation |
| 08050100 | Biological Aspects |
| 08050200 | Psychological Aspects |
| 08060000 | Geographical Influences of Recreation |
| 08070000 | Specific Recreational forms |

## #9 EXPRESSING RELIGIOUS IMPULSES

| Category Number | Category |
|---|---|
| 09000000 | Expressing Religious Impulses |
| 09010000 | Intellectual Religious Expression |
| 09010100 | Myth and Doctrine |
| 09010200 | Belief and Tradition |
| 09010300 | Symbolism |
| 09010400 | Salvation |
| 09020000 | Cultic Religious Expression |
| 09020100 | Cultic Integration |
| 09020200 | Cultic Change |
| 09020300 | Group Worship |
| 09020400 | Prayer |
| 09020500 | Objects of Worship |
| 09020501 | Nature |
| 09020502 | Supernatural |
| 09020503 | God(s) and/or Absolute Reality |
| 09020504 | Other objects of Worship |
| 09020600 | Sacredness |
| 09030000 | Organizational Religious Expression |
| 09030100 | Identical Socio-Religious Groups |
| 09030101 | Family and Kinship Groups |
| 09030102 | Parochial Groups |
| 09030103 | Ecumenical Groups |
| 09030200 | Specifically Religious Groups |
| 09030201 | The Mystery Society |
| 09030202 | The Higher Religion |
| 09030203 | The Church |
| 09020204 | The Sect |
| 09030300 | Religious Leadership |
| 09030301 | The Priesthood |
| 09030302 | The Founder |
| 09030303 | Prophets, Reformers and Saints |
| 09040000 | Dimensions of Religious Expression |
| 09040100 | The Spatial Dimension |
| 09040200 | The Temporal Dimension |
| 09040300 | The Valuational Dimension |
| 09050000 | Institutional Interrelationships |
| 09050100 | The Arts and Religion |
| 09050200 | Culture and Religion |
| 09050300 | Economics and Religion |
| 09050400 | Politics and Religion |

## #10 EXPRESSING AND SATISFYING ESTHETIC NEEDS AND IMPULSES

| Category Number | Category |
|---|---|
| 10000000 | Expressing and Satisfying Esthetic Needs and Impulses |
| 10010000 | General |
| 10010100 | Universality-reflecting the extent of the esthetic factor in man's life. |
| 10010200 | Need-man's need for esthetic expression |
| 10010300 | Art as a part of life-the ways in which esthetic experience is reflected as a part of man's life. |
| 10010400 | Esthetic experience-the personal sensing of the beautiful, that quality of personal sensing which is stirred by beaut · and pleasures. |
| 10010500 | Esthetic appreciation-the understanding and valuing of pleasureable sensations, of beauty. |
| 10010600 | Beauty-the qualities or quality which afford pleasure to the senses, the basis for esthetic valuation. |
| 10010700 | Valuation-setting of value or worth of materials or ideas, essentially on an esthetic basis. |
| 10010800 | Change-changes within the arts as they apply to man. |
| 10010900 | Separation-the distinction between the fine and the applied arts. |
| 10011000 | Imagery-rhetorical or graphic representation of ideas or impressions. |
| 10011100 | Creativity-man's attempts to produce representations of ideas and impressions, the development of the means of communication of ideas and impressions. |
| 10020000 | Art and Social Institutions |
| 10020100 | Art and Economics-the relation of Art to man's economic values. |
| 10020200 | Religion-esthetics as applied to man's religious activities and institutions. |
| 10020300 | Social Control-effects of esthetic values on control of societal relationships. |
| 10020400 | Control of Art-societal effects upon the means of esthetic expression. |
| 10030000 | Art and Society |
| 10030100 | Art and Culture-interaction between esthetic expression and culture. |
| 10030200 | Art and the Home-esthetic activity as it applies to man's personal habitation. |
| 10030300 | Art and the Community-esthetic activity as it applies to the communities of man. |
| 10030400 | Social Status-esthetics as a factor in social position. |
| 10030500 | Artists as a group-as differentiated from non-specialists. |

| | |
|---|---|
| 10030600 | Communications-esthetic expression as a means of communication. |
| 10030700 | Expression-the kinds and uses of esthetic expression. |
| 10030800 | Emotion-delineating the sense reaction and their effects. |
| 10030900 | Symbols-esthetic valuation of the symbols of society. |
| 10040000 | Elements of Esthetics(as evidenced in the findings). |
| 10040100 | General |
| 10040200 | Medium-various media of expression in Art. |
| 10040300 | Style-distinctive individuation of expression. |
| 10040400 | Design-the esthetic factors of plan. |
| 10040500 | Form and Function-relation of esthetic factors to functional use factors. |
| 10040600 | Unity and Variety-cohesiv ness of effect combined with uniqueness. |
| 10040700 | Balance-a general harmony between parts of anything, equipoise of effect. |
| 1004080 | Spatial organization-relation in space of the parts of art objects. |
| 10040900 | Rhythm-regularization of movement form, or effect. |
| 10041000 | Ornament-as applied by man to adorn himself and his environment. |
| 10050000 | Art forms (specific forms of esthetic expression) |
| 1005010 | Literature |
| 10050200 | Music |
| 10050300 | Dance |
| 10050400 | Drama |
| 10050500 | Handcraft |
| 10050600 | Architecture |
| 10050700 | Industrial Arts and Design |
| 10050800 | Commercial Art |
| 10050900 | Sculpture |
| 10051000 | Painting |

## APPENDIX B

## A THREE FACTOR MODEL OF A SOCIAL STUDIES CURRICULUM

### LIMITS OF THE MODEL

I

A program of articulated courses may be achieved within the framework of many general goals established for the social studies. Yet one which permits a rigorous logical test of validity must be limited to the domain of verified knowledge. Hence this model will not attempt to include what is considered to be conventionally indispensable, the inculcation of desirable values, but will be confined to knowledge and skill pertaining to the curriculum organization.

II

As one views the tasks of selecting content, choosing instructional materials, and designing learning activities in the social studies, several major questions must be asked. What system of inquiry is best for learning? What is most important to know and what is available or in need of creation to aid in learning? The answers to these essential questions when centered on the social studies may be viewed in terms of three factors: time, space and ideas.[1]

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[1]This notion rises from the contemplations and observations of Clarence Olmstead: time, space, people and ideas. The factor of "people" has been excluded due to the complexity of conceptualizing in four dimensions.

## III

## DEFINITIONS

Knowledge is definable as those major generalizations supported by information rising out of history and the social sciences. Historical generalizations tend to be more limited in application than those from the social science literature as the social sciences tend to be less factual with propositions tested in terms of their power to predict accurately.

## IV

Skills are elements of a general ability to critically apply knowledge. Inquiry in history and the social sciences toward certain essential skills to make information (data) significantly applicable to accurate conclusions and predictions, general ability to exercise special judgments of data, e.g., the historical method, the scientific method, must be developed in part with learners gaining insight, as they mature, into more sophisticated uses of the parts.

## V

Time as a factor may be considered in terms of intervals, sequence, and frequency. Most social studies programs (incorporate only interval (The Middle Ages) or sequences (causes and effects of World War II); here it will be viewed as frequency of occurence somewhat as Oswald Spengler did in The Decline of the West or the Beards in Rise of American Civilization.

VI

Space is sometimes defined psychologically as areas of behavior but more often in geographical terms, e.g., region. The second and most common definition is employed in the model, as it appears to have the greatest utility. Psychological space may be included instinctively in that cultural space rather than physical space is considered to be of greatest value in the curriculum model.

VII

Ideas is the factor of greatest complexity. At least two alternative definitions are possible: relevance and intensity. Any effort to weight the intensity of ideas in a total program would be insipient however exciting more limited exercises may be. The element of relevance is believed of greatest value here.

The definitions ot time, space, and ideas have been selected for their appropriateness in selecting and ordering information and the significant advantage offered in developing skills. Time--frequency generalizations suggest comparisons of both a microscopic and masroscopic nature. Cultural space generalizations interrelate parts to a whole and determine causation as a multi-directional phenomena. Relevant ideas are what they are in terms of the degree to which they explain clearly causative relationships.

## DESCRIPTION OF THE MODEL

The time, space, and ideas model is conceived as a three phase program of vertically articulated courses.

Phase one would apply to students during the first four years of school experience. Generalizations selected for the first phase would be taught inductively for the most part and be closely related to out-of-school experiences of children. The whole range of ideas would be employed very much as suggested by Bloom's Taxonomy (cognition) of educational objectives: (1) information, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation. Time and space would be considered to be subsidiary to ideas.

Intuitive teaching would be encouraged. Students will be rewarded for trying, comprehending and evaluating.

Phase two included that part of the program which is offered in grades 5 through 8 in conventional programs. Time and space would be emphasized over ideas and the first three elements of Bloom's taxonomy would be critical in skill development. Teachers would teach deductively for the most part with intuition sublimated by a concern for validity of information and accuracy in comprehension and application. Students will be rewarded for comprehending and evaluating.

Phase three includes an emphasis on all three factors with major attention given to analysis, synthesis and evaluation during a final four years in the social studies program. As in phase one teachers are to show willingness and enthusiasm for intuitive thought. Both deductive and inductive learning activities will be employed. Extensive use of rational explanations developed by scholars (theories and constructs) will permeate the curriculum. Students will be encouraged to develop and logically test their own theories and rewarded for their analysis and evaluation.

## APPENDIX C

## A SCOPE AND SEQUENCE OF TOPICS IN A MODEL CURRICULUM

| | |
|---|---|
| Grade 1 | Folkways and Ceremonies<br>Limited Resources |
| Grade 2 | Mores and Ceremonies<br>Unlimited wants<br>Sanctions<br>Commonalities in people<br>Group functions in the school<br>Social services to my school |
| Grade 3 | Allocation of resources and division of labor<br>Law and ceremonies |
| Grade 4 | Conservation of resources<br>Law and organization |
| Grade 5 | Classification of resources<br>Development of Chinese civilization |
| Grade 6 | Distribution of resources<br>Development of Moslem world |
| Grade 7 | Development of resources<br>Development of Mayan civilization |
| Grade 8 | Unwise use of resources (demographic emphases)<br>Ancient Western civilization<br>The Middle East -- Regional study<br>Roles of the historian and geographer in studying U.S. Colonial history<br>Conflicts between traditions in Middle Eastern cultures<br>Ethnic commonalities in Middle Eastern cultures |
| Grade 9 | Social organization and modern institutions<br>Transportation |
| Grade 10 | U.S. Economic history 1870 - 1960<br>Intellectual and cultural history of U.S., 1770-1960 |

| | |
|---|---|
| Grade 11 | Comparative economic systems<br>Comparative governments |
| Grade 12 | The roles of the social scientists<br>Human behavior<br>Nature of primitive society<br>Emerging societies<br>Technological changes<br>Alienation in American life |

## APPENDIX D

## INSTRUCTIONS FOR USERS

The incorporation of Social Science generalizations in the studies curriculum has, for many years, been thought of as valuable in teaching children about the world in which they live. The extensive use of social science generalizations, however, has been hampered by the lack of clearly delineated, valid generalizations.

Recently, at Stanford University, a collection of social science generalizations was made. These generalizations were universally applicable statements at the highest level of abstraction, relevant to all times or stated times, about men past and/or present, in a basic human activity. Ten basic human activities which are common to all cultures and societies were chosen as the major topic areas. These topics are:

Producing, Exchanging, Distributing, and Consuming Food, Clothing, Shelter, and other Consumer Goals and Services

Creating Tools, Technics, and Social Arrangements

Transporting People and Goods

Communicating Facts, Ideas, and Feelings

Protecting and Conserving Human and Natural Resources

Organizing and Governing

Providing Education

Providing Recreation

Expressing Religious Impulses

Expressing and Satisfying Esthetic Needs and Impulses

This collection was a great achievement in the field of social science education, but the generalizations were only available on microfilm. This form is not convenient for quick and easy use, so the generalizations were transferred on to IBM cards so that they may now be used like a card file or with data processing equipment. Now, there exists a convenient and flexible method by which these generalizations may be used by teachers.

By using these generalizations in the social studies curriculum, it is hoped that they will widen the range of sources used by teachers, searching for substantive information pertaining to a particular topic area or problem; encourage the process of inductive thinking on the part of the students in realizing and identifying generalizations; and to broaden the scope of the teaching-learning experiences for students through the use of pertinent and significant generalizations.

The following information will serve as a guide for the use of the generalizations and sources in the teaching of social studies in the elementary school.

How To Find The Generalizations

The social science generalizations have been placed on file cards and arranged under the ten topic areas. The outlines in this booklet give the contents of each dissertation topic. To find the

generalizations that deal with the topics that interest you most, you must first find the appropriate subject area in the outlines and then go to the card file to find the generalizations.

To make it easier for you to use the outlines and card file, special markings have been given to both. The various subdivisions of the outlines have been given special colors that are used in the same way.

Here is an example of how the outlines and colors appear:

1. Major heading (black card)
    - 1.1 Minor heading (red card)
    - 1.2 Minor heading (red card)
        - 1.21 Subheading (green card)
        - 1.22 Subheading (green card)

2. Major heading (black card)
    - 2.1 Minor heading (red card)
        - 2.11 Subheading (green card)
        - 2.12 Subheading (green card)

The number system corresponds to the numbers on each file card. The file cards look as follows:

---

01-02011-352

A generalization is written here . . . . . .
. . . . . C/20 - 251 * 1/40 - 17,25

---

Legend:

01-02011-352 is the category number which corresponds with a particular section of the outline

The various sections mean:

01 (the first two numerals) = the number of the dissertation
02 (the second two numerals) = the number of the major heading in the outline
01,(the third group of two numerals) = the number of the minor heading
1 (the fourth set of numerals) = the number of the subheading
352 (the last three numerals) = indicate the number of that particular generalization file card

On the outlines, the category number has been shortened so that the zeros are eliminated (unless it is a number, ike 10) and replaced by dots if they fall in the middle of the number group. Therefore, on the outlines, 01-02011 would appear like this: 2.11. The first two numbers are not needed, for they only signify the dissertation, and the last three are used only to keep the file cards in order.

Now, it is time to refer to the books from which the particular generalizations, that are of interest, were originally secured. The key to these references is the figure at the end of the generalization. In our example this key is: C/20-251 * 1/40-17,25. The books have been catalogued according to the particular dissertation topic that needed it as a source. These books are catalogued by use of their particular dissertation number and by an individual number of the book itself. Therefore a book used as a source for the dissertation 8, Recreation, would be catalogued as book 8/40.

There are 36 books which were used as sources for all ten dissertations. These books have been given the designation of C for common books. This C replaces the dissertation number which comes before the book's particular number. Therefore, one of these books, if its number was ten, would be catalogued as book C/10. The books have been placed on shelves according to their dissertation number, or, if they are common books, in a special section.

Legend of example: C/20-251 * 1/40-17,25

C = common group of books
/ = slash separating C from book number
20 = book number
- = dash separating book number from page number
251 = page number of book C/20 upon which generalization may be found
* = star separating two references in which the generalization is found
1 = dissertation number of the book
/ = slash separating dissertation number from the book number
40 = the book number
- = dash separating book number from the page number
17 = page number upon which the generalization may be found
, = comma separating one page reference from another
25 = an additional page reference

The books are arranged on shelves, first according to their dissertation number, and then, in sequence, according to their own particular number. The C books are placed before the books of dissertation number 1.

## Summation of the Procedure

1. Search outlines for relevant topics on subject of interest.
2. Find generalization by matching category numbers under the dissertation in the file box.
3. Go to book shelf and secure the references from which the generalization was taken.

4. Turn to the reference page and read the sections dealing with that generalization.

## Outline Dissertation #1

Producing, Exchanging, Distributing, and Consuming Food, Clothing, Shelter, and other Consumer Goods and Services

1. Producing
    - 1.1 What is produced
    - 1.2 Controlling Elements
        - 1.21 Increases
        - 1.22 Decreases
        - 1.23 Specialization
        - 1.24 Factors of Production
    - 1.3 Agricultural Production
    - 1.4 Extractive Production
    - 1.5 Manufacturing
    - 1.6 Relationship with non-economic Factors

2. Exchanging
    - 2.1 Extent of Trade
        - 2.11 Controlling Factors
        - 2.12 Limiting Factors
        - 2.13 Stimulating Factors
    - 2.2 Manner of Exchange
        - 2.21 Barter
        - 2.22 Medium of Exchange
    - 2.3 Price
    - 2.4 Geographic Relationships
    - 2.5 International Trade
    - 2.6 The Market

3. Distributing
    - 3.1 Wages
    - 3.2 Rent
    - 3.3 Interest
    - 3.4 Profits
    - 3.5 Equality - Inequality
    - 3.6 Redistribution

4. Consuming
    - 4.1 Demand
    - 4.2 Income
    - 4.2 Investments
    - 4.4 Expenditures

5. General
    - 5.1 Relationships with Basic Human Abilities
    - 5.2 Interrelationships among Producing, Exchanging, Distributing, and Consuming
        - 5.21 Producing and Consuming
        - 5.22 Producing and Exchanging
        - 5.23 Producing and Distributing
        - 5.24 Consuming and Exchanging
    - 5.3 Institutional Factors
        - 5.31 Social
        - 5.32 Political
        - 5.33 Family
    - 5.4 Technology

## Outline Dissertation #2

## Creating Tools, Technics, and Social Arrangements

1. Creating
    - 1.1 General
    - 1.2 Man
    - 1.3 Need
    - 1.4 Opportunity
    - 1.5 Cultural Base

2. Tools
    - 2.1 General
    - 2.2 Economic
    - 2.3 Social
        - 2.31 Symbols
        - 2.32 Knowledge
        - 2.33 Myth

3. Technics
    - 3.1 General
    - 3.2 Economic
    - 3.3 Social
        - 3.31 Communicating
        - 3.32 Controls
        - 3.33 Religious
    - 3.4 Esthetics

4. Social Arrangements
    - 4.1 General
    - 4.2 Groupings
    - 4.3 Institutions
        - 4.31 Economic
        - 4.32 Education
        - 4.33 Government
        - 4.34 Religion
        - 4.35 Social Controls
    - 4.4 Social Change

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6. Geographic Aspects of Transportation
   - 6.1 Climate
   - 6.2 Surface Topography
   - 6.3 Location of Settlements

## Outline Dissertation #4

## Communicating Facts, Ideas, and Feelings

1. Purpose of Communications
   - 1.1 Effect of Purpose on Communications
   - 1.2 Development and Preservation of a Culture
   - 1.3 Sharing and Acquiring Meanings
   - 1.4 Achieving Unity in Sub-Groups
   - 1.5 Acquiring and Using Power
   - 1.6 Emotional Expression
   - 1.7 Transmitting Values

2. Structure in Communication Media
   - 2.1 Modern Mass Communication
   - 2.2 Written Language
   - 2.3 Print
   - 2.4 Spoken Language
   - 2.5 Linguistic Structure
   - 2.6 Humor
   - 2.7 Rumor
   - 2.8 Propaganda

3. The Process of Communications
   - 3.1 The Changing Process
     - 3.11 Linguistic Change
     - 3.12 Semantic Change
   - 3.2 Barriers in the Process of Communications
     - 3.21 Associational
     - 3.22 Psychological
     - 3.23 Semantic and Linguistic
     - 3.24 Noise in Transmission
   - 3.3 Facilitators in the Process of Communications
   - 3.4 Coding and de-coding in the process of Communications
   - 3.5 The Use of Signs in Communications
   - 3.6 The Use of Words in Communications
   - 3.7 Using Signals in Communications
   - 3.8 Using Symbols in Communications
   - 3.9 Levels of Abstraction in Communications
   - 310 Using a Frame of Reference in Communications
   - 311 Redundancy in Communications

312 Using Inference in Communications
313 Using Controls in Communications

4. The Communicator
   4.1 Characteristics
   4.2 Acquiring a Language

5. Evaluating the Effectiveness of Communications
   5.1 General
   5.2 Mass Media
   5.3 Propaganda

Outline Dissertation #5

Protecting and Conserving Human and Natural Resources

1. Physical Elements
   1.1 Atmosphere, Climate, and Geographic Position
   1.2 Oceans and Tidelands
   1.3 Water
   1.4 Water Pollution
   1.5 Floods and Erosion
   1.6 Land and Space
   1.7 Soil
   1.8 Mineral
   1.9 Fuels
   110 Fire

2. Biotic Elements (excluding man)
   2.1 Crops
   2.2 Grasslands and Range
   2.3 Forests and Forest Products
   2.4 Wildflowers
   2.5 Fish and Sea Life
   2.6 Wildlife

3. Material Culture and its Sanctions
   3.1 Agriculture
   3.2 Production
   3.3 Economics
   3.4 Power and Energy
   3.5 Property
   3.6 Taxes
   3.7 Laws and Regulations

3.8 Research
3.9 Technology
310 Change

4. Social Institutions and Processes
   4.1 Family
   4.2 Groups
   4.3 Culture
   4.4 Institutions and Formal Organizations
   4.5 Nation
   4.6 Government
   4.7 Education
   4.8 International Relations
   4.9 Crime
   410 War and Crisis

5. Man
   5.1 Human Beings
   5.2 Population
   5.3 Health
   5.4 Manpower
   5.5 Morality
   5.6 Religious and Spiritual
   5.7 Recreation and Esthetics

6. Interrelated Statements

## Outline Dissertation #6

## Organizing and Governing

1. Organization
   1.1 Social Organization
      1.11 Function and Purpose
      1.12 Determinants
      1.13 Product
      1.14 Control
   1.2 Social Institution
      1.21 Function and Purpose
      1.22 Determinants
      1.23 Product
   1.3 Social Association
      1.31 Function and Purpose
      1.32 Determinants
      1.33 Product
   1.4 Group Association
      1.41 Primary

1.42 Secondary
1.5 Quality of Relationship
1.51 Competition
1.52 Cooperation
1.53 Cooperation, Competition, and Conflict
1.54 Conflict
1.6 Social Role

2. Governing
2.1 Purpose and Function
2.2 Determinants
2.3 Product
2.4 Control
2.5 Ideology
2.6 Reorganization

## Outline Dissertation #7

## Providing Education

1. Attitudes and Values
2. Curriculum
3. Educational Systems
4. Group Influences
4.1 Family
4.2 Other groups
5. Interaction
6. Purposes and Goals
7. Socio-Cultural Influences
8. Symbolization-Communications
9. Teaching-Learning Process
10. Transfer

## Outline Dissertation #8

### Providing Recreation

1. Characteristics of Recreation
   - 1.1 General Characteristics
   - 1.2 Importance

2. Historical Aspects of Recreation

3. Social Aspects of Recreation
   - 3.1 Influence of the Culture on Recreation
   - 3.2 Community Type of Recreation
   - 3.3 Social Change and Leisure
   - 3.4 Socialization through Recreation
   - 3.5 Interpersonal Association and Groups
   - 3.6 The Church and Recreation
   - 3.7 The Family and Recreation
   - 3.8 Industrial-Occupation Provision of Recreation
   - 3.9 Organized Community Recreation
   - 310 Commercial Recreation
   - 311 Recreation in Primitive

4. Politico-Economic Aspects of Recreation

5. Bio-Psychological Aspects of Recreation
   - 5.1 Biological Aspects
   - 5.2 Psychological Aspects

6. Geographical Influences of Recreation

7. Specific Recreatinnal Forms

## Outline Dissertation #9

### Expressing Religious Impulses

1. Intellectual Religious Expression
   - 1.1 Myth and Doctrine
   - 1.2 Belief and Tradition
   - 1.3 Symbolism
   - 1.4 Salvation

2. Cultic Religious Expression
   - 2.1 Cultic Integration
   - 2.2 Cultic Change
   - 2.3 Group Worship
   - 2.4 Prayer
   - 2.5 Objects of Worship
     - 2.51 Nature
     - 2.52 Supernatural
     - 2.53 God(s) and/or Absolute Reality
     - 2.54 Other objects of Worship
   - 2.6 Sacredness

3. Organizational Religious Expression
   - 3.1 Identical Socio-Religious Groups
     - 3.11 Family and Kinship Groups
     - 3.12 Parochial Groups
     - 3.13 Ecumenical Groups
   - 3.2 Specifically Religious Groups
     - 3.21 The Mystery Society
     - 3.22 The Higher Religion
     - 3.23 The Church
     - 3.24 The Sect
   - 3.3 Religious Leadership
     - 3.31 The Priesthood
     - 3.32 The Founder
     - 3.33 Prophets, Reformers, and Saints

4. Dimensions of Religious Expression
   - 4.1 The Spatial Dimension
   - 4.2 The Temporal Dimension
   - 4.3 The Valuation Dimension

5. Institutional Interrelationships
   - 5.1 The Arts and Religion
   - 5.2 Culture and Religion
   - 5.3 Economics and Religion
   - 5.4 Politics and Religion

## Outline Dissertation #10

### Expressing and Satisfying Esthetic Needs and Impulses

1. General
   - 1.1 Universality - reflecting the extent of the esthetic factor in man's life
   - 1.2 Need - Man's need for esthetic expression

1.3 Art as a part of Life - the ways in which esthetic experience is reflected as a part of man's life
1.4 Esthetic experience - the personal sensing of the beautiful, that quality of personal sensing which is stirred by beauth and pleasure
1.5 Esthetic appreciation - the understanding and valuing of pleasurable sensations, of beauty
1.6 Beauty - the qualities or quality which afford pleasure to the senses, the basis for esthetic valuation
1.7 Valuation - Setting of value or worth of materials or ideas, essentially on an esthetic basis
1.8 Change - changes within the arts as they apply to man
1.9 Separation - the distinction between the fine and the applied arts
110 Imagery - rhetorical or graphic representation of ideas or impressions
111 Creativity - man's attempts to produce representations of ideas and impressions, the development of the means of communication of ideas and impressions

2. Art and Social Institutions
2.1 Art and Economics - the relation of art to man's economic values
2.2 Religion - esthetics as applied to man's religious activities and institutions
2.3 Social Control - effects of esthetic values on control of societal relationships
2.4 Control of Art - societal effects upon the means of esthetic expression

3. Art and Society
3.1 Art and Culture - interaction between esthetic expression and culture
3.2 Art and the Home - esthetic activity as it applies to man's personal habitation
3.3 Art and the Community - esthetic activity as it applies to the communities of man
3.4 Social Status - esthetics as a factor in social position
3.5 Artists as a group - as differentiated from non-specialists
3.6 Communications - esthetic expression as a means of communication
3.7 Expression - the kinds and uses of esthetic expressions

3.8 Emotion - delineating the sense reaction and their effects
3.9 Symbols - esthetic valuation of the symbols of society

4. Elements of Esthetics ( as evidenced in the findings)
   4.1 General
   4.2 Medium - various media of expression in Art
   4.3 Style - distinctive individuation of expression
   4.4 Design - the esthetic factors of plan
   4.5 Form and Function - relation of esthetic factors to functional use factors
   4.6 Unity and Variety - cohesiveness of effect combined with uniqueness
   4.7 Balance - a general harmony between parts of anything, equipoise of effect
   4.8 Spatial organization - relation in space of the parts of art objects
   4.9 Rhythm - ragularization of movement form, or effect
   4.0 Ornament - as applied by man to adorn himself and his environment

5. Art forms (specific forms of esthetic expression)
   5.1 Literature
   5.2 Music
   5.3 Dance
   5.4 Drama
   5.5 Handcraft
   5.6 Architecture
   5.7 Industrial Arts and Design
   5.8 Commercial Art
   5.9 Sculpture
   510 Painting

## APPENDIX E

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